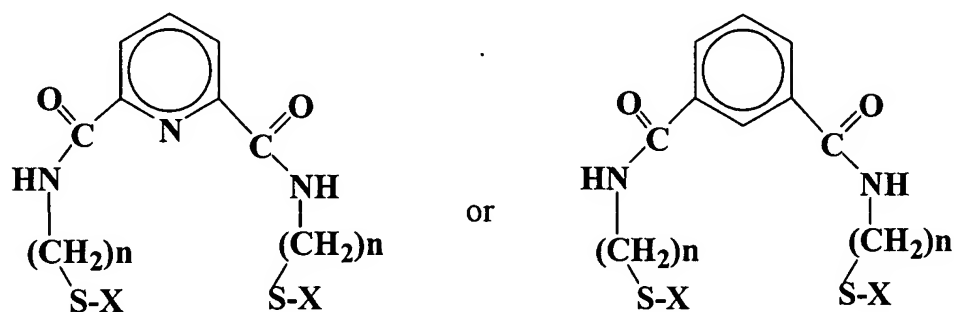


What is Claimed is:

1. A method of preventing leaching of metal from a metal-containing solid substrate, comprising the steps of:

5                   coating the substrate with an effective amount of a solution of a chelate ligand having a chemical formula:



where  $n = 1-4$  and  $X$  is selected from the group consisting of hydrogen, lithium, sodium, potassium, rubidium, cesium, and francium; and  
allowing the chelate ligand solution to dry.

2. The method of claim 1, wherein the chelate ligand solution contains ligand in an amount of from about 0.01 M to about 1.0 M.

3. The method of claim 1, wherein the metal in the metal-containing solid substrate may be any metal in or capable of being placed in a positive oxidation state.

4. The method of claim 3, wherein the metal in the metal-

containing solid substrate is selected from a group consisting of lead, copper, mercury, cadmium, iron, nickel, zinc, aluminum, antimony, arsenic, barium, beryllium, chromium, cobalt, magnesium, manganese, selenium, silver, strontium, thallium, tin, gold, vanadium and mixtures thereof.

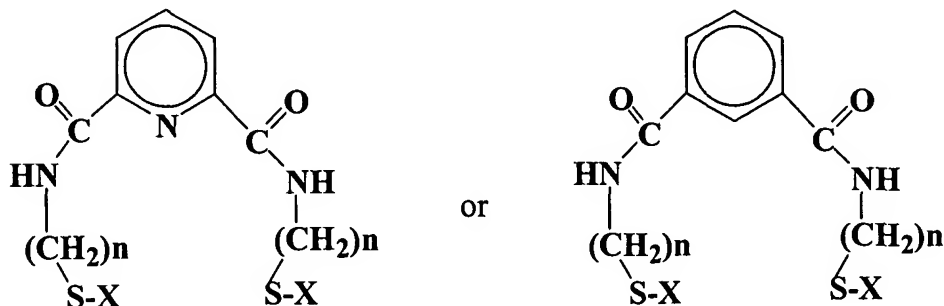
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5. The method of claim 1, wherein leaching of the metal in the metal-containing solid substrate is prevented at pH values from about 0 to about 14.

6. The method of claim 1, wherein the solid substrate is coated with the chelate ligand by immersion, by spraying, by painting, or by misting.

7. A method of preventing leaching of metal from a metal-containing coal substrate, comprising the steps of:

coating the coal with an effective amount of a solution of a chelate ligand having a chemical formula:



5       where  $n = 1-4$  and X is selected from the group consisting of hydrogen, lithium, sodium, potassium, rubidium, cesium, and francium; and  
allowing the chelate ligand solution to dry.

8. The method of claim 7, wherein the chelate ligand solution contains ligand in an amount of from about 0.01 M to about 1.0 M.

9. The method of claim 7, wherein the metal in the metal-containing coal may be any metal in or capable of being placed in a positive oxidation state.

10. The method of claim 9, wherein the metal in the metal-containing coal is selected from a group consisting of lead, copper, mercury, cadmium, iron, nickel, zinc, aluminum, antimony, arsenic, barium, beryllium, chromium, cobalt, magnesium, manganese, selenium,  
5       silver, strontium, thallium, tin, gold, vanadium and mixtures thereof.

11. The method of claim 7, wherein leaching of the metal in the metal-containing coal is prevented at pH values from about 0 to about 14.

12. The method of claim 7, wherein the coal is coated with the chelate ligand by immersion, by spraying, or by misting.